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NOTES ON REPTILES AND BATRACHIANS OF PENNSYLVANIA, NEW JERSEY AND DELAWARE

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IN view of the increasing interest in the study of our reptiles and batrachians it seems desirable to place on record any facts that may add to our knowledge of the distribution and relative abundance of the various species. The writer therefore offers the following list which is based upon his personal observations in eastern Pennsylvania and southern New Jersey, and upon specimens contained in the splendid collection of the Academy of Natural Sciences of Philadelphia, which includes the collections of Green, Hallowell, A. E. Brown, and Cope, together with local material collected by Samuel Ashmead, Samuel N. Rhoads, Henry W. Fowler, and the writer.

No species are included unless specimens obtained in one of the three States have been examined, and unless otherwise stated the specimens are in the Academy collection.

It follows that a few species which have been recorded from the district under consideration but of which no specimens were accessible have been omitted, and as the notes are only intended as a contribution toward a complete list, no attempt has been made to quote records or observations at second hand. Further collections will undoubtedly extend the range of many species.

Necturus maculosus Rafinesque.—One specimen obtained in

Darby Creek near Essington, Delaware Co., Pa., by Jas. Gardiner, March 2, 1900, is the only example I have ever seen from this vicinity.¹

Cryptobranchus alleghaniensis (Daudin).—Mainly west of the Alleghanies. Specimens examined from the Beaver and Alleghany Rivers and also from the Susquehanna near Tucquan, Lancaster Co., where it was occasionally taken by the late Jacob Stauffer, of Lancaster, Pa.

Amblystoma opacum (Gravenhorst).—I have never personally collected this species but have examined specimens from

New Jersey, Atlantic City (W. J. Fox), Beesley's Point (Ashmead), and Medford (J. S. Wills);

Delaware, Newark (T. B. Wilson).

Amblystoma punctatum (Linné).—Occasional but not an abundant species.

Pennsylvania, Philadelphia (J. W. Tatum), Ardmore, Mont. Co. (I. N. De Haven), Clifton, Delaware Co. (B. Wainwright), York Furnace, York Co. (Stone), Chambersburg (Rhoads).

Amblystoma conspersum Cope.—Cope's type specimen from Londongrove, Chester Co., Pa., is the only one I have seen from this district.

Amblystoma bicolor (Hallowell).—I have seen only the type specimen from Beesley's Point, N. J.

Amblystoma tigrinum (Green).—Specimens have been examined from Beesley's Point, N. J. (S. Ashmead, G. H. Horn), and from Crosswicks, N. J. (J. H. Slack). I have never taken it in Pennsylvania.

Amblystoma jeffersonianum (Green).—One specimen in the Academy collection was obtained by Dr. Hallowell "near Philadelphia." I know of no other captures.

Hemidactylum scutatum (Schlegel).—Five specimens were obtained by S. N. Rhoads at Swartzwood Lake, Sussex Co., N. J., in October, 1895, and another from the same County a year later.

Plethodon cinereus (Green).—An abundant species about Philadelphia ranging to the highest parts of the Pennsylvania Alleghanies,—Ganoga Lake, Sullivan Co. (S. Brown)—and to Swartz-

¹ Cf. Fowler, *Science*, (n. s.), vol. 11, p. 555, 1900.

wood Lake, northern New Jersey (Rhoads). I have also taken it in Delaware and have examined specimens from as far south as Seaford in that State.

It has always been my experience that this and the following species are nowhere equally abundant; one or the other always predominates.

Plethodon glutinosus (Green).—I have never taken this salamander about Philadelphia or in southern New Jersey, and it seems to be a characteristic species of the mountains or their foothills.

I have examined specimens from the following localities:—

Pennsylvania, Warren Co. (Dr. Kennedy), Venango Co. (Miss Brown), Huntingdon Co. (Dr. Leidy), Juniata Co., York Co., Sullivan Co., Pike Co.

New Jersey, Swartzwood Lake, Sussex Co. (Rhoads).

Gyrinophilus porphyriticus (Green).—This is also a mountain species, and has never so far as I am aware, been taken within the limits of the Carolinian fauna. I have examined the following specimens:—

Pennsylvania, Warren Co. (Dr. Kennedy), Altoona, Blair Co. (Dr. Leidy), Round Island, Clinton Co. (Rhoads), and Tuscarora, Juniata Co. (C. Ingersoll).

Spelerpes bilineatus (Green).—This is a rather common and widely distributed species. I have taken it at various points in Philadelphia, Chester, and Lancaster Co., Pa., as well as in southern New Jersey west of the pine barrens. I have also examined specimens from Atlantic City, N. J., and from Morris Co. (F. Canfield), Swartzwood Lake and White Pond (Rhoads) in the northern part of the State and from Dingman's Ferry, Pike Co., Pa. (Rhoads).

Spelerpes longicauda (Green).—This species is not so plentiful as the preceding and I have never taken it in the southeastern part of Pennsylvania nor in southern New Jersey although there is one in Cope's collection from Atlantic City, N. J.

Farther west in Pennsylvania I have examined specimens from Lancaster Co., Huntingdon Co. (Cope), Cresson, Blair Co., and Round Island, Clinton Co. (Rhoads). In northern New Jersey Rhoads obtained it at White Pond, Warren Co.

Spelerpes ruber (Daudin).---A common species in spring heads. I have taken it in Philadelphia, Chester, and Lancaster Cos., and in Camden Co., N. J. It seems fairly well distributed and has been obtained in the Alleghanies at Round Island, Clinton Co. (Rhoads), and in Blair Co. (Dr. McCook); also at Wilmington, Delaware. I fail to distinguish the variety *montanus* Cope.

Desmognathus ocrop hæa Cope.—This seems to be a boreal species and I have only seen specimens from the higher Alleghanies, Harvey's Lake, Luzerne Co. (Stone), Lake Ganoga, Sullivan Co. (Rhoads), and Clinton Co., Pa. (S. Brown).

Desmognathus fusca (Rafinesque).—Probably our most abundant salamander. Found throughout eastern Pennsylvania, northern and southwestern New Jersey, but apparently not in the streams of the pine barrens. In Delaware it occurs in the Brandywine drainage and probably elsewhere.

Desmognathus nigra (Green).—The only Pennsylvania specimen that I have seen is one presented to the Academy by Dr. Holbrook without definite locality.

Diemyctylus viridescens Rafinesque.—An abundant species in the lakes and ponds of the mountainous parts of Pennsylvania and New Jersey; the terrestrial form is common in the hemlock forests.

I have taken it sparingly in York and Chester Cos., but not about Philadelphia nor in southern New Jersey, though Dr. Wilson obtained some near Newark, Delaware.

Bufo lentiginosus americanus (Holbrook).—Everywhere abundant from the mountains to the coast, including the pine barrens.

Acris gryllus crepitans Baird.—I have found this species common along the lower Delaware and Susquehanna valleys. H. W. Fowler has secured it at Cape May, N. J., and S. N. Rhoads obtained it in Sussex, Somerset, and Warren Cos., in the upper part of the State.

Chorophilus triseriatus Wied.—Personally I have not observed this frog but Cope states that it is common in southwestern New Jersey and he also observed it in southern Chester Co., Pa. Rhoads obtained specimens at Pine Grove, Cumberland Co., Pa.

Hyla versicolor Le Conte.—This is the most frequent tree frog during the summer, for the others are seldom seen except when

gathered in the ponds, in springtime. It is quite generally distributed south of the mountains, the most northern specimen that I have examined being from Morristown, N. J. (M. Fisher).

Hyla pickeringii Holbrook.—A common species in shaded pools in early spring. I have examined specimens from the Delaware valley, Chester Co., Pa., and also from Altoona, Blair Co., Pa. (Dr. Leidy), and Pine Grove, Cumberland Co. (Rhoads). Dr. Wilson obtained it in Delaware.

Hyla andersonii Baird.—All the specimens so far secured except the type have come from the pine barren region of New Jersey. Dr. Leidy's specimen from Jackson and one obtained by Mr. H. L. Viereck¹ at Clementon are in the Academy's collection. The others were two secured at Pleasant Mills by Dr. J. P. Moore and one from May's Landing, (J. E. Peters).

Rana pipiens Schreber.—Abundant all along the coast marshes and large rivers. I have examined specimens also from White Pond, N. J., and Waynesburg, Green Co., Pa. (Rhoads), and from several cedar swamps in the New Jersey pine barrens. In the latter region *R. palustris* does not seem to occur.

Rana palustris Le Conte.—Common throughout Pennsylvania and in northern and southwestern New Jersey. It ranges to the top of the Alleghanies as I have seen it in Sullivan and Wyoming Cos., and Rhoads took it at Round Island, Clinton Co., Pa.

Rana sylvatica Le Conte.—Distributed throughout Pennsylvania and New Jersey. I have found it on the highest ranges of the Alleghanies and on the edge of the pine barrens at Medford, N. J., while Rhoads secured a specimen at May's Landing, in the same State.

Rana clamitans Latreille.—Abundant and widely distributed, occurring both in the mountains and in the pine barrens of New Jersey where it is the most abundant frog.

Rana catesbiana Shaw.—Apparently widely distributed but much scarcer than formerly. I have taken it on the lower Delaware and Susquehanna and their tributaries and have seen specimens from Absecon, N. J. (S. Ashmead), and Harvey's Lake, Pa.

¹Stone, *Proc. Acad. Nat. Sci. Phila.*, 1901. Since this paper was prepared, W. T. Davis has discovered this species and *Rana virgatipes* at Lakehurst in the New Jersey pine barrens (*Amer. Nat.*, vol. 38, p. 893; vol. 39, p. 795).

Rana virgatipes Cope.—All of the specimens of this interesting frog that have been captured, are, so far as I am aware, in the Academy's collection and have been fully reported upon by H. W. Fowler.¹ They are all from the New Jersey pine barrens; the one obtained by the writer was from Speedwell, Burlington Co.

Carphophiops amœnus (Say).—Obtained in Chester and York Cos., Pa., and Pt. Pleasant, Beesley's Point (Ashmead), Trenton (Abbott), and Bridgeton (Walmsley), N. J.

Virginia valeriæ Baird & Giraud.—One specimen is in the Academy collection from Delaware received from C. Drexler.

Storeria occipitomaculata (Storer).—A common snake throughout the mountains south of the Pocono plateau and east of the Alleghanies. I have only seen one example which I captured in the New Jersey pine barrens on the edge of Bear Swamp, east of Medford. This record is interesting as in the same vicinity we find *Evotomys*, a northern rodent, common in the mountains, but absent in the intervening territory.

Storeria dekayi (Holbrook).—A rather common snake in southeastern Pennsylvania; also obtained at May's Landing, N. J., and doubtless of wider distribution in both States.

Clonophis kirtlandi (Kennicott).—Two examples from the region under consideration are in the Academy collection; one obtained near Trenton, N. J., by Dr. C. C. Abbott, the other in Delaware Co., Pa., by E. Dutton.

Tropidoclonium lineatum Hallowell.—A snake was obtained at Round Island, Clinton Co., Pa., by Seth Nelson collecting for Mr. S. N. Rhoads, which he identified as this species. I examined it at the time and I have no doubt as to the correctness of the identification. Unfortunately the specimen cannot now be found.

Thamnophis sauritus (Linné).—This is a rather common snake throughout the lowlands and probably the mountains also. I have seen specimens from the Pocono plateau, Pa., and Swartzwood Lake, N. J., but not as yet from the main Alleghany range.

Thamnophis sirtalis (Linné).—The Garter Snake is distributed

¹*Proc. Acad. Nat. Sci. Phila.*, p. 662, 1905.

all over the region under consideration and presents several more or less distinct types of coloration. So far as the material available for examination is concerned it would seem that the dark form with the stripes nearly obliterated, *T. s. ordinatus*, is restricted to the higher Alleghanies as the only specimens are from Sullivan and Wyoming Cos. (Stone) and Port Alleghany, McKean Co. (Fowler). All the specimens that I have seen from south of the mountains are true *sirtalis* with well defined stripes and usually conspicuous spots. Those obtained by Rhoads at Round Island, Clinton Co., Pike Co., Pa., and Sussex Co., N. J., are somewhat intermediate. That these two forms are not absolutely coincident with the Canadian and Carolinian-Alleghanian belts as indicated, is shown by the fact that a fairly typical *sirtalis* was obtained on the high Alleghanies of Sullivan Co., Pa. A nearly uniform green specimen, "*T. s. gramineus*" Cope, was also obtained at the latter locality. This I take to be a mere color form of *ordinatus*.

***Thamnophis butleri* Cope.**—While for some years *Thamnophis brachystomus* Cope has been regarded as a mere abnormal example of *T. sirtalis*, the recent discovery of a number of specimens in Michigan¹ seems to establish its distinctness. The type is from Franklin, Venango Co., Pa. (Miss A. M. Brown) and I am now able to record an additional Pennsylvanian specimen obtained at Port Alleghany, McKean Co., Aug. 19, 1904, by H. W. Fowler. This individual has the plates as follows: upper labials, 6-6; lower labials, 6-7; postoculars, 2-2; gastrosteges, 136; urosteges, 47; length, 377 mm. It presents the principal additional characteristics of the species in a marked degree, *i. e.*, the rapid tapering toward both head and tail, and the very slight constriction at the neck. The lateral stripe is mainly on the third row of scales involving part of the second and at some points part of the fourth row.

After the above was written Alex. G. Ruthven examined the two specimens and pronounces them in his opinion identical with *T. butleri* a conclusion which he had already reached in connection with Dr. Clark's specimens.²

¹H. L. Clark. *Proc. Biol. Soc. Wash.*, vol. 16, pp. 83-88, 1903.

²*Biol. Bull.*, vol. 7, no. 5, Nov., 1904.

Regina leberis (Linné).—This does not appear to be a common species and I have never seen it alive. Two specimens marked "Pennsylvania" (J. L. Wortman) are in the Academy collection as well as specimens from Philadelphia (J. E. Ives), Waynesburg, Green Co., Pa. (Rhoads), and Newark, Del. (Dr. T. B. Wilson).

Natrix sipedon (Linné).—Common in suitable localities throughout the region.

Calopeltis obsoletus (Say).—I have only taken this snake in Chester Co., Pa., but have examined several from southern New Jersey, one of which was obtained on the coast at Stone Harbor, by D. McCadden.

Calopeltis obsoletus confinis Baird & Giraud.—One young specimen secured many years ago at Dennisville, Cape May Co., N. J., by Samuel Ashmead is in the Academy collection, and another was secured at Diamond Valley, Huntingdon Co., Pa., September, 1905, by J. A. G. Rehn. While currently referred to this form it seems probable that these are nothing more than young *obsoletus* which at this age may be highly colored, but so far as I know there is no description of the young of this species. The specimens before me are gray with brown spots.

Opheodryas æstivus (Linné).—I have taken this in the southern part of New Jersey only, and have seen no specimens from elsewhere in the district under consideration. It is locally rather plentiful.

Liopeltis vernalis (DeKay).—A common species throughout the Pennsylvania mountains, McKean Co. (Fowler), Sullivan and Wyoming Cos. (Stone), Clinton Co. (Rhoads), Monroe Co. (C. T. Sands). The only New Jersey example that I have seen was taken at Trenton, N. J., by Dr. C. C. Abbott.

Bascanion constrictor (Linné).—Common in the low grounds and at least onto the first ridges of the mountains and though I have not as yet seen a specimen from the main Alleghany range, it no doubt occurs there.

Pituophis melanoleucus (Daudin).—The commonest large snake in the New Jersey pine barrens but I have not seen specimens from farther north in the State nor from Pennsylvania.

Diadophis punctatus (Linné).—Sparingly about Philadelphia but more plentiful nearer to the mountains, over which it ranges. Specimens examined from

Pennsylvania, Bucks Co. (W. A. Shryock), Cumberland Co. (Rhoads), Lancaster Co. (Stone), Monroe Co. (Rhoads), Harvey's Lake, Luzerne Co. (Stone);

New Jersey, Morris Co. (Dr. Fisher).

Lampropeltis getulus (Linné).—A rather common species in southern New Jersey, the most northern record being Pt. Pleasant, Ocean Co. (S. Brown). All the specimens I have examined came from the eastern and western edge of the pine barrens rather than from the heart of the region though this may have been accidental. Rhoads obtained this snake at Seaford, Del., but I have never seen a specimen from Pennsylvania.

Lampropeltis doliatus (Linné).—One typical specimen from Delaware (J. Green) is in the Academy collection and another not quite typical from the same State obtained by Drexler.

Throughout the greater part of eastern Pennsylvania and New Jersey is found *L. d. clericus* and it is everywhere a common snake unless it be in the New Jersey pine barrens from which district I have seen no specimens. Another race, *L. d. triangulus* (Boie), seems to be the form of the higher mountains and is represented in the Academy collection by a specimen from McKean Co., Pa. (Fowler) and one marked near Philadelphia. More material will be necessary in order to ascertain whether these two forms are constant and confined to the districts assigned to them. Certain it is that examples from twenty localities south of the mountains are all *clericus*, the Philadelphia specimen above mentioned being the only exception.

Heterodon platyrhinos Latreille.—Common, ranging from the Alleghanies across to the coast.

Agkistrodon contortrix (Linné).—Becoming scarce in thickly settled districts. I have seen it in York and Fulton Cos., Pa., and have examined specimens from Carbon Co. (Rehn), Lehigh Co. (Rehn), Pottsville (C. T. Hughes), Round Island, Clinton Co. (Rhoads), Pa. I have seen no specimens from New Jersey.

Crotalus horridus (Linné).—I have found this species within the past few years on the foothills of the main Alleghany Mountains near Lovelton, Wyoming Co., and on Tuscarora Mt., Fulton Co., Pa., while Rehn collected several in Huntingdon Co. and Rhoads obtained specimens at Round Island, Clinton Co., and

in Pike Co., Pa., and I have examined additional specimens from Chambersburg (Mrs. P. P. Calvert) and Warren Co., Pa. (Dr. Slack). In the southeastern parts of the State it is exterminated. In southern New Jersey it is very rare and I know of no authentic recent records though there is a specimen in the Academy collection collected many years ago at Pemberton, N. J. (Dr. Coleman).

Eumeces fasciatus (Linné).—I have taken this lizard at York Furnace, York Co., Pa., and J. A. G. Rehn obtained it on the mountains of Huntingdon Co., Pa., where one would rather expect *E. anthracinus*, a species which I know from the State only on the strength of Baird's Carlisle record. In New Jersey it occurs at May's Landing, Jones Mill, and doubtless other spots in the pine barrens. In Delaware I have found it about Choptank Mills. One in the Wagner Institute collection, captured in Fairmount Park, Philadelphia, a few years ago, may have escaped from confinement like the specimens of *Phrynosoma* and Alligator which are occasionally found within the city limits.

Leiolepisma laterale (Say).—On September 2, 1901, J. A. G. Rehn and I caught one of these little lizards and saw another a mile or so east of Atsion, Burlington Co., N. J., in the heart of the pine barrens. Dr. J. P. Moore had previously taken it at Pleasant Mills some ten miles farther south.

Sceloporus undulatus (Daudin).—Abundant all over the pine barrens of New Jersey, but I have not seen it from north of this region. In Pennsylvania it is rare, though formerly more common. I have only taken it along the lower Susquehanna valley, in York and Lancaster Cos., though Rhoads obtained it at Round Island, Clinton Co., and I have examined a specimen collected in Chester Co. by Cope.

Dermochelys coriacea (Vandelli).—One was washed ashore at Asbury Park, N. J., some years ago, and another from Delaware Bay is in Cope's collection.

Aspidonectes spinifer (Le Suer).—A few of these turtles have of late years found their way into the Delaware valley. One was captured in Cooper's Creek, N. J., in 1902, and another in Warren Co., N. J., now in the Wagner Institute collection, Philadelphia. I have also examined specimens from the Alleghany River in western Pennsylvania.

Chelydra serpentina (Linné).—Widely distributed throughout the region.

Kinosternon pennsylvanicum (Bosc.).—I have so far found this species only in southeastern Pennsylvania and southern New Jersey, ranging as far north as Sea Girt (Rhoads).

Aromochelys odoratus (Latreille).—Apparently more abundant than the preceding and of wider range. I have seen it from the same general region as the above and also from Swartzwood Lake, Sussex Co., N. J. (Rhoads).

Graptemys geographicus (Le Suer).—I found a carapace and plastron of this turtle on the marsh at Bayside, N. J., in the spring of 1903.

Malaclemmys centrata (Latreille).—I have examined specimens from Cape May, N. J. (Dr. Ruschenberger) and the coast of Delaware but have only one recent record, a specimen in the Wagner Institute collection in Philadelphia, captured in Dias Creek, Cape May Co., N. J., a few years ago. It has become rare within the district under consideration.

Pseudemys rubriventris (Le Conte).—I have seen this turtle in ponds and slow streams at several points in southern New Jersey, especially at Medford and Milford and have examined specimens obtained at Woodbury and Rehoboth Beach, Delaware (T. R. Peale). One in the Academy collection is marked "Delaware River, Philadelphia."

Chrysemys picta (Hermann).—This species is abundant in most large streams and ponds throughout the district though I have no data upon its occurrence on the Alleghanies.

Clemmys muhlenbergi (Schweigger).—I have seen probably a dozen specimens of this turtle in W. Bradford township, Chester Co., Pa., and several in Tinicum, Delaware Co. In New Jersey I secured one at Medford, May 30, 1905, and found another near Audubon, Camden Co., in December. The only other specimens that I have examined were labeled "near Philadelphia."

Clemmys insculptus (Le Conte).—Apparently wide ranging but not very common. I have taken it in Chester and Fulton Cos., Pa., and have examined the following additional specimens: Bristol, Pa. (Fowler), Round Island, Clinton Co., Pa. (Rhoads), Delaware Gap, Warren Co., N. J. (Rhoads), and Woodbury, N. J. I have no record for the pine barrens.

Clemmys guttatus (Schneider).—All over southeastern Pennsylvania and southern New Jersey, including the pine barrens but as to its occurrence in the higher mountains I am in doubt.

Terrapene carolina (Linné).—Common throughout southeastern Pennsylvania especially in Chester Co., and also in the southwestern part of the State, Waynesburg, Green Co. (Rhoads). For New Jersey my data are meager but I have no record for the pine barrens. The species seems to be restricted to the Carolinian fauna. Two specimens of *T. triungius* Agassiz are in the Academy collection labeled "*Cistudo clausa*, near Philadelphia, S. G. Worth." The labels must surely have been transposed as this is quite beyond the range of the species.